What is claimed is:

1. A method for color correction including:

(1)the gray levels and luminance of light source of display device being measured by color measurement system;

(2)the gray levels and luminance being normalized and N groups of gray levels (P) and luminance (Q) being selected, wherein N is a positive integer and $2 \leq N \leq$ maximum which the display device can display;

(3)each n groups of selected values being taken as an interval, wherein n is a positive integer and $2 \leq n \leq N$;

(4)the gray levels (P) and the luminance (Q) of each interval being executed logarithmic and divisional operation to obtain a gamma parameter: $\gamma = \log Q / \log P$, then a fitting function of the gamma parameter for each interval being able to be obtained, which can fit all selected data of the interval;

(5)the fitting luminance of each gray level in interval being able to be obtained from the fitting function of each interval of each color light, and then a lookup table consisted of gray levels and fitting luminance being able to be made;

(6)the original gray data of image being normalized to obtain a gamma curve consisted of gray level (X) and luminance (Y) of each color light, the gamma curve function $Y = X^{\gamma}$, γ being gamma parameter;

(7)the image gray signals of gamma curve function $Y = X^{\gamma}$ being corresponded to a predetermined target curve function $Yt = Xt^{\gamma'}$, letting Xt =X and obtaining a modified gray signals by iteration method, its steps including:

(a)the gamma curve function and the target curve function being executed logarithmic and divisional operation, i.e. $\log Yt = (\gamma' / \gamma) \log Y$, to obtain the target luminance Yt;

(b)obtaining a transitional luminance Yn corresponding with a transitional gray

levels Xn from the lookup table;

(c)comparing the transitional luminance Yn with the target luminance Yt, if the

difference between them being smaller than a toterable error, then the Yt and

5   Xt being substituted by the Yn and Xn, respectively, if the difference between

them being larger than a tolerable error, then the steps mentioned above being

repeated; and

(d)the modified gray signals being transmitted out, and the display device

expressing the gray distribution state according to the modified gray signals.

10   2.   The method for color correction as claimed in claim 1, wherein the light source

are red, green and blue (RGB) color lights.

3.   The method for color correction as claimed in claim 1, wherein the maximum of

neighboring gray levels and luminance in each interval are taken to obtain the gamma

parameters, i.e. $\gamma = \log Q_{max} / \log P_{max}$.

15   4.   The method for color correction as claimed in claim 1, wherein the fitting function

is a polynomial function of the gamma parameter $Q = \sum_{m=2}^{n} a_m P^{\gamma_m} + a_1 P + a_0$,

n being a positive integer and $2 \leq n \leq N$, $a_{n-1}=0$, a_m, a_1 and a_0 being the coefficients of

the function, γ_m being determined by the gray levels and luminance of each interval.

5.   A method for color correction including:

20   (1) the gray levels and luminance of light source of display device being measured

by color measurement system;

(2) the gray levels and luminance being normalized and N groups of gray levels (P)

and luminance (Q) being selected, wherein N is a positive integer and $2 \leq N \leq$

maximum which the display device can display;

25   (3) each n groups of selected values being taken as an interval, wherein n is a

positive integer and $2 \leqq n \leqq N$;

(4) the gray levels (P) and luminance (Q) of each interval being executed logarithmic and divisional operation to obtain a gamma parameter: $\gamma = \log Q / \log P$, then a fitting function of the gamma parameter for each interval being able to be obtained, which can fit all selected data of the interval; and

(5) the fitting luminance of each gray level in interval being able to be obtained from the fitting function of each interval of each color light, thereby the display device being able to express the gray distribution state according to the modified gray levels and luminance.

6. The method for color correction as claimed in claim 5, wherein the maximum of neighboring gray levels and luminance in each interval are taken to obtain the gamma parameter, i.e. $\gamma = \log Q_{max} / \log P_{max}$.

7. The method for color correction as claimed in claim 5, wherein the fitting function is a polynomial function of the gamma parameter $Q = \sum_{m=2}^{n} a_m P^{r_m} + a_1 P + a_0$, n being a positive integer and $2 \leqq n \leqq N$, $a_{n-1}=0$, a_m, a_1 and a_0 being the coefficients of the fitting function, γ_m being determined by the gray levels of each interval.

8. The method for color correction as claimed in claim 5, wherein the light source are red, green and blue color lights, the measured gray levels of red light being: 0, 31, 63, 95, 127, 159, 191, 207, 223, 239, 255, the measured gray levels of green light being: 31, 63, 95, 127, 159, 191, 207, 223, 239, 255, and the measured gray levels of blue light being: 30, 63, 96, 129, 162, 195, 215, 235, 255.

9. The method for color correction as claimed in claim 5, wherein the display device is a liquid crystal display device.

10. The method for color correction as claimed in claim 5, wherein the display device is a projector.

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11. The method for color correction as claimed in claim 5, wherein the display device is a plasma display panel.

12. A method for color correction including:

(1) the image gray signals of gamma curve function $Y=X^{\gamma}$ being corresponded to a predetermined target curve function $Yt=Xt^{\gamma'}$, letting $Xt=X$ and obtaining a modified gray signals by iteration method, its steps including:

(a) the gamma curve function and the target curve function being executed logarithmic and divisional operation, i.e. $\log Yt=(\gamma'/\gamma)\log Y$ to obtain the target luminance Yt;

(b) obtaining the transitional luminance Yn corresponding with the transitional gray levels Xn from a lookup table;

(c) comparing the transitional luminance Yn with the target luminance Yt, if the difference between them being smaller than a tolerable error, then the Yt and Xt being substituted by the Yn and Xn, respectively, if the difference between them being larger than a tolerable error, then the steps mentioned above being repeated;

(d) the modified gray signals containing target gray levels Xt being transmitted out; and

(2) the modified gray signals being transmitted out, and then the display device being able to express the gray distribution state according to the modified gray signals.

13. The method for color correction as claimed in claim 12, wherein the lookup table containing the luminance corresponding with each gray level being able to be adjusted and obtained by user.